Attachment – Floodplain Boundary Standard Implementation

Background

Flood Map Modernization projects began in earnest in FY 2003. All ongoing projects will result in digital FIRMs compliant with the Guidelines and Specifications in place at the time of study initiation. However, they are still subject to possible audit against the floodplain boundary standard outline in this memorandum.

Projects initiated in FY 2005 and subsequent years will be tasked to meet the floodplain boundary standard provided in Table 1. Thus, it is important that compliance with this standard be planned for during project scoping and tasking phase.

Selection and Process for Audit

Entire communities (as well as the flooding sources within them and the points to be tested) will be randomly selected for audit in coordination with FEMA Regional offices. Maps will be audited either before they are issued preliminary or after they go effective. They will not be audited during the post-preliminary period and the effective date of the new maps. The number of points where audits will be performed will be proportional to the size of the community or the flooding source.

The results of all audits performed (pass or fail) will be provided to the FEMA Regional office and the mapping partner concurrently. In the event a particular study fails the audit, the mapping partner will be given the opportunity to review and respond to the audit results. There are a variety of legitimate reasons a particular project may fail to meet the floodplain boundary standard and the mapping partner will be given ample opportunity to provide justification. Copies of the justifications must be provided to the tester, FEMA headquarters, and the Regional office. The Regional Office will be the final adjudicator of all justifications submitted. If the justifications are found to be acceptable (by the Region), the map in question would be considered modernized and counted toward the KPIs. Examples of potentially legitimate justifications are provided below:

1. Original topographic mapping used to prepare the effective FIS and FIRM could not be found but, as documented in the FIS, it was of better detail and accuracy than the data used to run the check AND that making the boundaries fit the ground elevation data used in the check would result in a less reliable product.

2. An existing feature not reflected in the topographic data was taken into account when preparing the mapped floodplain boundary.

Mapping projects that fail the audit will not be considered modernized and will not count toward the KPIs. For such projects, FEMA will work with the state, communities, and the appropriate map producer to determine the appropriate course of action for the project, such as initiating an upgrade or leaving the product “as is” until a later date. Factors to consider when making this decision might include community and state

desires, availability of resources, capitalizing on the utility of the product, impact on the KPIs, timeliness of audit in relation to the effective date, and others.

Studies Not Contracted to Meet the Standard

All maps produced using Map Mod funding, including studies funded prior to FY2005 will be subject to audit against this standard. For any projects not tasked to meet the standard, the Region will work with the mapping partner to assess the impact on scope, schedule, and cost of meeting the standard. The Region will then decide whether or not to revise the task order, Mapping Activity Statement, or Inter-Agency Agreement to meet (and incorporate by reference) the floodplain boundary standard provided in Table 1. If that is deemed not feasible, the Region will decide whether or not to defer the project. Despite contractual obligations, all maps produced using Map Modernization funding are subject to testing against this standard. Failures to meet the standard are not necessarily violations in contract requirements.

Implementation for New Studies

The following process is required for new study starts beginning in FY 2005 to ensure compliance with the standard. Some exceptions may be allowed by FEMA.

1. DETERMINE THE RISK CLASS UPFRONT. Determine the risk class of the study areas, with input from state and local officials. The risk class, which can be based on the factors such as county decile, population growth data, and repetitive losses, at risk infrastructure, can vary within each and/or different flooding sources within a study area (usually a county). The risk classifications should be agreed to by the community, state, and the FEMA Region during project scoping. FEMA makes the final determination of risk classes in cases of dispute. Identifying the topographic data sources to be used for study should also be performed at this step.

2. DETERMINE ADEQUACY OF LEVEL OF STUDY. Determine whether or not the level of study (e.g., detailed, approximate, unstudied) on the effective map is appropriate for the risk class. If so, proceed to step 3. If not, develop new study/restudy and develop floodplain boundaries that comply with Table 1 standard for the risk class. Floodplain boundaries must be delineated using topographic/terrain data that meet existing FEMA standards. If funds do not allow for development of new study/restudy, FEMA, in conjunction with state and local officials will decide whether or not to proceed with the project or defer new engineering. Deferred projects will be captured as a community map need in the MNUSS database/MIP scoping tool.

3. DETERMINE ADEQUACY AND RELIABILITY OF EXISTING FLOOD HAZARD DATA. For flooding sources for which the level of study is deemed adequate under step 2, evaluate the adequacy and reliability of the existing underlying engineering analyses (discharges, profiles, etc.) with respect to risk class. If deemed adequate, proceed to step 4. If not, consider developing updated

flood hazard data and floodplain boundaries that comply with Table 1 standard. If funds do not allow for development of new study/restudy, FEMA, in conjunction with state and local officials will decide whether or not to proceed with the project or defer new engineering. Deferred projects will be captured as a community map need in the MNUSS database/MIP scoping tool.

4. DETERMINE APPROPRIATE METHOD FOR MAPPING NON-REVISED FLOODPLAINS. For flooding sources not being newly studied or restudied, mapping partners should not be predisposed to simply transfer the boundaries from the old FIRM to the new map. Rather, the mapping partner must make an earnest effort to upgrade the floodplain boundaries utilizing available resources. The three types of redelineation, listed below in preferred order of use, are:

   Case 1: Revised Topographic Delineation: Conduct research to determine if topographic/terrain data is available from the state, community, or other source that is of better quality than that used to prepare the effective FIS and FIRM. Topographic data is considered of better quality if it is of greater vertical accuracy, is more recent that that used to prepare the effective FIRM, and otherwise meets FEMA's standards for topographic data. If higher quality topographic/terrain data is available, it should be obtained and used to redelineate the floodplain boundaries using the effective FIS and/or published flood profiles.

   Case 2: Work-Map Based: If topographic data of better quality is not available, conduct research to determine if the original work maps are available from the FEMA library maintained by the National Service Provider or the state or community. If available, these work maps, which typically include detailed topographic strip mapping along the flooding source, should be used to digitize the floodplain boundaries and cross sections.

   Case 3: FIRM-Based: If neither better quality topographic data or the original work maps are available, the floodplain boundaries from the effective FIRMs may be used and "fitted" to the selected DFIRM base map using road intersections and other "hard" features as fixed reference points. For mapping projects where FIRM-based redelineations will be utilized, the mapping partner must make a reasonable effort to validate that the resultant floodplain boundaries meet the floodplain boundary standard. There are a variety of techniques that can be used for this validation, such as walking the mapping floodplain areas and utilizing a hand-held GPS to spot check the horizontal reliability of the delineations. In some instances, communities may be able to perform this field validation as their contribution to the project. FIRM-based method requires prior approval from the FEMA Region.

Many projects will entail a combination of the above techniques. That is, some flooding sources will be newly studied or restudied, while others will be transferring effective FIS information to the new maps. Additionally, the risk class may vary by flooding source and thus, the floodplain reliability requirement will vary according to Table 1.

In addition, a specific strategy for how to handle any approximate Zone A areas should be developed in the project scoping phase. First and foremost, state and local officials should be queried regarding their perceptions of the quality and reliability of existing Zone A floodplains depicted on the effective FIRMs. Other indicators, such as the number of LOMCs (particularly LOMAs), information about known flood events, and repetitive flood damages outside mapped floodplains, should also be considered in assessing the quality and reliability of the Zone A floodplains. If the assessment reveals concerns or problems with the effective Zone A boundaries and/or there exists better data (topographic or flood hazard), the Zone A boundaries must be replaced, not transferred. This can be done using existing flood hazard data available from another source or through the mapping partner conducting new approximate or limited detailed study. This approximate study will likely be automated and require no or minimal field work. As stated in Table 7-6 of the November 2004 MHIP, USGS quadrangle maps (tagged vector contour information) are acceptable for establishing Zone A floodplains in the absence of more detailed topographic data available from state, local, or other sources.

For mapping projects contractually tasked to meet the floodplain boundary standard outlined in Table 1, a mapping partner's signature on the Technical Support Data Notebook will mean (among other things) that the floodplain boundaries comply with the standard. Since FY 2005 (and later) mapping projects will comply with the Data Capture Standards, the tools made available through the MIP will allow the mapping partner and FEMA to perform automated checks for floodplain boundary data quality. Consequently, the mapping partner should check as many points and flooding sources as they deem necessary in order to feel comfortable attesting to the floodplain boundary quality for all flood hazards in their study area. Areas selected for audit where the floodplain boundaries were mapped using automated techniques, will not be tested. Rather, they will automatically receive a passing score. Further, areas found to fail the test can be refered to the local government for a ground truth assessment. If that assessment finds the floodplain boundaries are adequate (despite the audit result), the score will be revised to pass all points within the area assessed.

If you have any questions with the information stated in this document, please contact Doug Bellomo at (202) 646-2903.